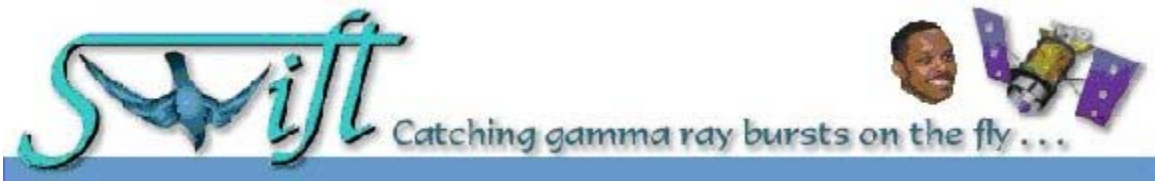

CV10-2568 Adhesive Mixing Procedure

410.4-PROC-0058

Revision -

Goddard Space Flight Center

Greenbelt, Maryland

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CHANGE RECORD PAGE (1 of 2)

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ISSUE	DATE	PAGES AFFECTED	DESCRIPTION

DOCUMENT TITLE:

RELEASE DATE:

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1 General

1.1 Introduction

The BAT instrument requires a coded aperture mask that is 4'x 8'x 1.54" in size. Approximately 52,000 lead tiles (5x5x1 mm) will be bonded to the mask in a predetermined nonrepeating random pattern covering about 50% of the panel surface.

Each tile will be cleaned, primed, and precured with a 4mm x 4mm square layer of CV10-2568. In addition, a skim coat of wet CV10-2568 will be applied to the substrate for adhering the precured tiles to the panel surface. Primer must be applied to the lead tiles and the substrate per 410.4-PROC-0057 prior to application of the CV10-2568.

1.2 Applicable Documents

GSFC-Swift-410-Spec-002	Swift Mission Assurance Requirements Document
410.4-MGMT-0005	BAT Mechanical Requirements Document
NHB8060.1	Flammability Odor and Offgassing Requirements
NASA/GSFC	Engineering Services Division Safety Manual, September 1990
NASA RP-1124 (Revision 4)	Outgassing Data for Selecting Spacecraft Materials
ASTM E-595-93	Test Method for Total Mass Loss and Collected Volatile Condensable Materials from Outgassing in a Vacuum Environment
410-4-PG-8730.3.1	Swift Quality Management Plan

1.3 Responsibilities

The BAT Mask Lead Engineer is responsible for providing authorization for the activity, technical advice, assistance during handling operations, coordination, and notification to all applicable personnel. Only trained and qualified personnel, the Lead Engineer and Lead Technician are permitted to perform the following tasks. Additional personnel will only be used if specifically authorized by the cognizant engineer.

The GSFC Code 300 Quality Assurance (QA) representative shall be responsible for monitoring the operation and verifying all steps of the procedure are signed & dated.

1.4 Safety

Emergency Actions: When an unsafe condition exists, the Mask Lead Technician will take immediate action to prevent injury to personnel or hardware.

1.5 Procedure Deviations

Deviations from this procedure shall be redlined in the official copy and will be initialed by the BAT Mechanical PDL and or designee and QA representative.

1.6 Quality Assurance

QA will monitor all operations as specified in this procedure. They shall stamp or initial to verify that all operations listed are acceptable as indicated.

1.7 Mixing Summary

The CV10-2568 silicone adhesive is manufactured by NuSil. Prior to mixing any adhesive, the expiration date should be recorded and only adhesive within the manufacturer's specified shelf life should be used. While in their jars, mix both Parts separately prior to use. In a clean container on a scale, Parts A and B will be combined and mixed thoroughly using the manufacturer's recommended mix ratio of 1:1. As required, Cab-o-sil M5 will be measured, by weight, and mixed thoroughly into the CV10-2568 mixture. A turbo vacuum and bell jar system will be used to degas.

2 Requirements

2.1 Required Equipment

CV10-2568 – Part A & Part B	Cab-o-sil M5
Polypropylene Mixing Containers	3 Stainless Steel Spatulas
Polyethylene Gloves	Nitrile Gloves
Cab-o-sil Drying Oven	Horizon Tech Wipes
Silicone Designated Bell Jar	Turbo Vacuum System
ACS Grade Acetone	ACS Grade Isopropanol

Calibrated Scale - Officially Designated for Swift Use (##.## g Accuracy)

2.2 Required Personnel

Title	Name
Mask Lead Technician	Mike Schoolman

3 Procedures

3.1 Tile Initial Coat, 3% Cab-o-sil

Event #	Responsible Code	Event Description	Signature and Date		NCR #	Product Disposition Completion Date
			17. Performed by	18. Inspected by		
3.1.1		**Using polyethylene gloves, clean the stainless steel spatulas using a Horizon Tech Wipe and ACS Grade Acetone followed by Isopropanol.**				
3.1.2		**Record all pertinent information in the CV10-2568 Mixing & Cab-o-sil Drying Logs.**				
3.1.3		Obtain Cabot's Cab-o-sil M5 thickening agent supplied by Code 541.				
3.1.4		Spread Cab-o-sil out on a sheet of aluminum foil and store in the designated Cab-o-sil drying oven at 250-300° F. **Oven should remain on at all times.** **Start Date_____ Time_____**				
3.1.5		Obtain Parts A and B of NuSil's CV10-2568 adhesive. **CV10-2568 Lot # _____** **Expiration Date_____ Mix Date _____**				
3.1.6		Verify scale calibration is up to date. **Scale ID # _____Recalibration Date _____**				
3.1.7		Mix Part A in its jar thoroughly using a clean stainless steel spatula.				
3.1.8		Mix Part B in its jar thoroughly using a clean stainless steel spatula.				
3.1.9		Place a clean polypropylene container on the scale. Tare the scale.				
3.1.10		Using the spatula, add **25g** of Part A. **Part A Weight _____ g**				

Event #	Responsible Code	Event Description	Signature and Date		NCR #	Product Disposition Completion Date
			17. Performed by	18. Inspected by		
3.1.11		Tare the scale. Using the Part B spatula, **add Part B equal to Part A wt. from previous step.** **Note: Mix Ratio = 1:1.** **Part B Weight _____ g**				
3.1.12		Using the spatula, combine Part A and Part B until thoroughly and uniformly mixed. **Time Mixed _____ Use By Time _____** **Use By Time is a maximum of 2 hours from start of mixing.**				
3.1.13		Once mixed, place the container with Part A and Part B mixture on the scale.				
3.1.14		Using values recorded in **3.1.10** and **3.1.11** calculate the total wt. **Part A + Part B = Total Weight _____ g**				
3.1.15		Calculate the Cab-o-sil weight required as 3% of total weight. **3% Cab-o-sil = .03 * Total Weight = _____ g**				
3.1.16		Remove the required amount of Cab-o-sil. **Verify a minimum of 24 hrs bakeout in Cab-o-sil Drying Log prior to use.**				
3.1.17		Tare the scale. Using a clean spatula, **add Cab-o-sil equal to wt. listed in 3.1.15.** **Note: Mix Ratio = 1:1:0.03** **Cab-o-sil Weight _____ g**				
3.1.18		Using the spatula, thoroughly mix Cab-o-sil into the CV10-2568 mixture.				
3.1.19		**Perform Degassing Procedure in Section 3.4.**				

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3.2 Tile Skim Coat, 0% Cab-o-sil

Event #	Responsible Code	Event Description	Signature and Date		NCR #	Product Disposition Completion Date
			17. Performed by	18. Inspected by		
3.2.1		**Using polyethylene gloves, clean the stainless steel spatulas using a Horizon Tech Wipe and ACS Grade Acetone followed by Isopropanol.**				
3.2.2		**Record all pertinent information in the CV10-2568 Mixing Log.**				

Event #	Responsible Code	Event Description	Signature and Date		NCR #	Product Disposition Completion Date
			17. Performed by	18. Inspected by		
3.2.3		Obtain Parts A and B of NuSil's CV10-2568 adhesive. **CV10-2568 Lot # _____** **Expiration Date_____ Mix Date _____**				
3.2.4		Verify scale calibration is up to date. **Scale ID # _____Recalibration Date _____**				
3.2.5		Mix Part A in its jar thoroughly using a clean stainless steel spatula.				
3.2.6		Mix Part B in its jar thoroughly using a clean stainless steel spatula.				
3.2.7		Place a clean polypropylene container on the scale. Tare the scale.				
3.2.8		Using the spatula, add the **5g** of Part A. **Part A Weight _____ g**				
3.2.9		Tare the scale. Using the Part B spatula, **add Part B equal to Part A wt. from previous step.** **Note: Mix Ratio = 1:1.** **Part B Weight _____ g**				
3.2.10		Using the spatula, combine Part A and Part B until thoroughly and uniformly mixed. **Time Mixed _____ Use By Time _____** **Use By Time is a maximum of 2 hours from start of mixing.**				
3.2.11		**Perform Degassing Procedure in Section 3.4.**				

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3.3 Panel Skim Coat, 3% Cab-o-sil

Event #	Responsible Code	Event Description	Signature and Date		NCR #	Product Disposition Completion Date
			17. Performed by	18. Inspected by		
3.3.1		**Using polyethylene gloves, clean the stainless steel spatulas using Extracted Wipes and ACS Grade Acetone followed by Isopropanol.**				
3.3.2		**Record all pertinent information in the CV10-2568 Mixing & Cab-o-sil Drying Logs.**				
3.3.3		Obtain Cabot's Cab-o-sil M5 thickening agent supplied by Code 541. Records kept by Code 541.				

Event #	Responsible Code	Event Description	Signature and Date		NCR #	Product Disposition Completion Date
			17. Performed by	18. Inspected by		
3.3.4		Spread Cab-o-sil out on a sheet of aluminum foil and store in the designated Cab-o-sil drying oven at 250-300° F. **Oven should remain on at all times.** **Start Date_____ Time_____**				
3.3.5		Obtain Parts A and B of NuSil's CV10-2568 adhesive. **CV10-2568 Lot # _____** **Expiration Date_____ Mix Date _____**				
3.3.6		Verify scale calibration is up to date. **Scale ID # _____Recalibration Date _____**				
3.3.7		Mix Part A in its jar thoroughly using a clean stainless steel spatula.				
3.3.8		Mix Part B in its jar thoroughly using a clean stainless steel spatula.				
3.3.9		Place a clean polypropylene container on the scale. Tare the scale.				
3.3.10		Using the spatula, add the desired amount of Part A. **(75g Qual, 125g Flight)** **Part A Weight _____ g**				
3.3.11		Tare the scale. Using the Part B spatula, **add Part B equal to Part A wt. from previous step.** **Note: Mix Ratio = 1:1.** **Part B Weight _____ g**				
3.3.12		Using the spatula, combine Part A and Part B until thoroughly and uniformly mixed. **Time Mixed _____ Use By Time _____** **Use By Time is a maximum of 2 hours from start of mixing.**				
3.3.13		Once mixed, replace the container with Part A and Part B mixture on the scale.				
3.3.14		Using values recorded in **3.3.10** and **3.3.11** calculate the total wt. **Part A + Part B = Total Weight _____ g**				
3.3.15		Calculate the Cab-o-sil weight required as 3% of total weight. **3% Cab-o-sil = .03 * Total Weight = _____ g**				
3.3.16		Remove the required amount of Cab-o-sil. **Verify a minimum of 24 hrs bakeout in Cab-o-sil Drying Log prior to use.**				

Event #	Responsible Code	Event Description	Signature and Date		NCR #	Product Disposition Completion Date
			17. Performed by	18. Inspected by		
3.3.17		Tare the scale. Using a clean spatula, **add Cab-o-sil equal to wt. listed in 3.3.15.** **Note: Mix Ratio = 1:1:0.03** **Cab-o-sil Weight _____ g**				
3.3.18		Using the spatula, thoroughly mix Cab-o-sil into the CV10-2568 mixture to achieve uniform consistency.				
3.3.19		**Perform Degassing Procedure in Section 3.4.**				

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3.4 CV10-2568 Degassing Procedure

Event #	Responsible Code	Event Description	Signature and Date		NCR #	Product Disposition Completion Date
			17. Performed by	18. Inspected by		
3.4.1		Place container with freshly mixed adhesive into the bell jar attached to the turbo vacuum.				
3.4.2		Degas for a **minimum of 10 minutes** after noting the green indicator light. **Green Light: Start _____ End_____**				
3.4.3		Slowly allow air to deflate adhesive until mix reaches original volume, approximately 3 minutes.				
3.4.4		Degas for a **minimum of 10 minutes** after noting the yellow indicator light. **Yellow Light: Start _____ End_____**				
3.4.5		**Remove from bell jar and use within Use By Time listed in 3.1.12, 3.2.10 or 3.3.12 as appropriate.**				

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